AMENDMENT

Statement of the Claims

1. (previously presented) An optical apparatus for investigating a fluid stream, comprising:

an optical probe having a distal end and a longitudinal axis, said distal end of said optical probe comprises a tapered tip having a substantially cubical corner defined by three planes substantially perpendicular to each other and not parallel to a plane including said longitudinal axis.

2. (previously presented) An optical apparatus according to claim 1, wherein:

a diagonal of said cubical corner is aligned with a longitudinal axis of said optical probe.

3. (original) An optical apparatus according to claim 1, wherein:

an incident angle of light at each of said three planes is 54.73° ± 1°.

4. (previously presented) An optical apparatus according to claim 1, wherein:

said optical probe terminates at a sharp tip where said three planes meet.

5. (previously presented) An optical apparatus according to claim 1, wherein:

said tapered tip of said optical probe terminates at a rounded corner.

6. (previously presented) An optical apparatus according to claim 5, wherein:

said three planes define three lines where respective sets of two of said three planes meet, and said optical probe is rounded at each of said three lines.

7. (previously presented) An optical apparatus according to claim 1, wherein:

said optical probe has a base adjacent cubical corner, said base tapering in diameter from a larger to a smaller diameter as said probe extends distally towards said cubical corner.

8. (original) An optical apparatus according to claim 7, wherein:

said taper is less than 10°.

9. (original) An optical apparatus according to claim 7, wherein:

said taper is at most 5°.

10. (previously presented) An optical apparatus according to claim 1, wherein:

said optical probe has a diameter of between 0.2 mm and 0.4 mm.

11 – 18 (canceled)

19. (canceled)

20 – 21 (canceled)

22. (previously presented) An optical apparatus for investigating a fluid stream, comprising:

an optical probe having an optical fiber, said ~~one~~ optical fiber having a distal end and a longitudinal axis, said distal end of said ~~one~~ optical fiber comprising a tapered tip having a substantially cubical corner defined by three planes substantially perpendicular to each other and not parallel to a plane including said longitudinal axis.

23. (canceled)

24. (previously presented) An optical apparatus for investigating a fluid stream flowing in a well, comprising:

a) a tool having an elongate body suspended in the well;

b) a light source; and

c) a plurality of optical probes coupled to said elongate body and to said light source including

a first probe comprising an optical fiber having a distal end arranged as either a substantially cubical corner defined by three planes substantially perpendicular to each other and not parallel to a plane including said longitudinal axis, or a substantially uniform cone having a face angled at 45° ± 2° relative to a longitudinal axis, and a second probe comprising an optical fiber having a distal end arranged as a paraboloid or a hemisphere.

25. (canceled)